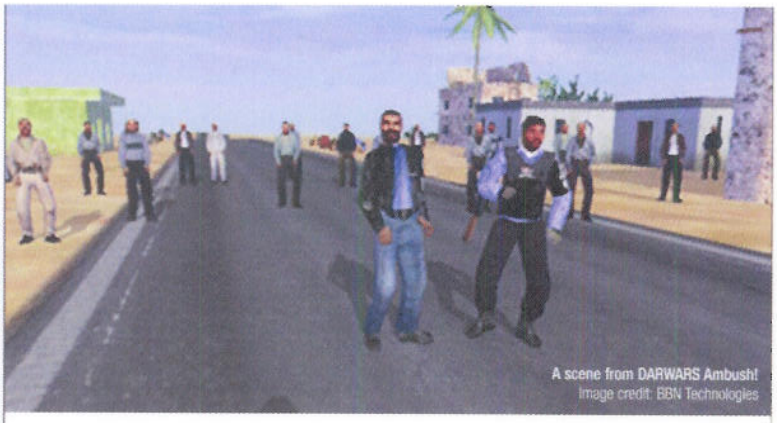

A scene from DARWARS Ambush!
Image credit: BBN Technologies

Institutionalizing a Grass Roots Movement

PEO STRI is faced with the task of managing the rapid growth of gaming applications. **Chuck Weirauch** describes the challenges and some of the proposed solutions.

It has been called a "grassroots" revolution because personnel and commands in the field throughout the Department of Defense (DoD) started it, but the rising wave of the demand for more and better applications of gaming technology for training seems to be taking on the characteristics of a small tsunami. However, in order to better direct its impact, US services must first determine what the latest technological advances are, how such technology has and can be best applied to training, and, most critically, find the common means to fund and leverage it for future training applications as quickly as possible.

"The generation of soldiers that are coming into the Army today grew up in a technical environment," Pete Marion, Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) Customer Support Executive, pointed out. "What we are recognizing is that we can take the gaming skill sets they already possess, and we can chart in a direction that provides us with a medium by which we can address tactics, techniques and procedures inherent in the missions that they are willing to do in the field. This has really been a grassroots effort not so much at the higher levels of the Army, but at our field locations, such as the 10th Mountain Division."

Since some of the first applications of gaming technology by Army field divisions and commands, there has been a spread of gaming applications "somewhat like a grass fire" across the Army, Marion said. This rapid growth has led to a wide localized application of the technology in the field, but a fair amount that has not come to the attention of lead training organizations such as PEO STRI. In addition, this rapidly growing demand for gaming technology-based training solutions has presented the Army with an acquisition dilemma.

Although there is considerable demand for the application of gaming technology for training throughout the Army and the DoD, currently there is no Army contract vehicle for the acquisition of gaming technology. This problem, along with the lack of a standard requirements document, has created a major stumbling block for the Army.

Funding for gaming technology applications comes from the overall current annual training budgets of the units of the Army, a part of which is provided to PEO STRI to assist in acquiring such products. Many commands and other units throughout the Army also procure their own gaming solutions, which has led to the duplication of payment of gaming engine licensing fees.

"What this trend has done is place demands on the system that are outside of our normal realms of acquisition support," Marion said. "Normally, we can work within the system to develop a line of acquisition pursuit. What has driven us now is a response to turn-around time that is much faster than what we have seen before."

Contracting Strategies

PEO STRI is looking for a game-contracting mechanism that meets these faster responsiveness issues. In that context, the PEO is considering its newly designated Army Head of Contracting Activity (HCA) authority as a medium to provide a responsive acquisition process, Marion explained. The Orlando-based training organization was granted this authority in late February. In essence, it designates PEO STRI as the Army's acquisition authority for all of the Army's simulation, training and instrumentation programs.

"In the future, we're looking at putting together an indefinite delivery, indefinite quantity (IDIQ) contract which will give us a selection of the kind of industry partners that we have not worked with before," said Leslie Dubow, Project Director, Gaming and Non-Standard Training Devices, in PEO STRI's PM ACTT Program Management Office. "This effort will help establish what marketing folks call a virtual marketplace and an easier way to do business. Right now we are in the infancy of this entire process."

Under the IDIQ, PEO STRI will be looking at open-source gaming engines such as Delta 3D, among other gaming technologies, Dubow said. Several military training games have already been developed for training purposes with this open-source gaming engine technology. PEO STRI is also looking at developing a repository of gaming models and simulations for reuse under the IDIQ contract, he added.

Although the IDIQ contract concept is under consideration, but not yet funded, Dubow considers it an acquisition tool for the future. More immediate considerations are the expansion of DARWARS Ambush! game-based trainer development from a closed-loop networked system into a massively multiplayer gaming system for distance training. Another project could be one that incorporates some of the best elements of the America's Army gaming program, or the development of a gaming-technology-based mission rehearsal system.

Open Source

"Generally, when you get into the genre of the America's Army gaming product, which uses the Unreal gaming engine, you get into use rights and licenses issues," Marion said. "This is one of the fundamentally biggest challenges. While the technology is out there in the commercial sector for us to be able to build the interfaces for our virtual-reality activities or simulators to games of record, such as WARSIM and or OneSAF, we need to be able to have source code and be given use rights to games."

"I'll say that we like open access," Marion continued. "I'm not going to say that there isn't an opportunity and the occasion where we would pay the licensing fees or buy the use rights in certain circumstances, but what we like is an open gaming solution, where we can work with small businesses that are game developers to build applications and content. What we are looking for is to have a common infrastructure in place, and then contract out for the content."

DARWARS Ambush!

PEO STRI is interested in such applications for DARWARS Ambush! in particular, since the

organization has taken over responsibility for development of this game, which was created by DARPA's DARWARS Program. This multiplayer convoy protection and leadership trainer has seen field use for about three years and has been modified by dozens of divisions and commands to add new training applications. The game has been used in theater for training in Iraq and Afghanistan, and has been used to train more than 20,000 soldiers in convoy operations over the past 18 months, according to Dubow.

"Currently we have transitioned to DARWARS Ambush!, and we are now the supporting infrastructure for it," Dubow said. "Ambush! is kind of the first game that we have worked with, and it is the description for what we're looking at for the future."

Since taking over DARWARS Ambush! development, PEO STRI has provided new versions of that game which include new vehicle models, the latest kinds of improvised explosive devices (IEDs), and other battlefield lessons-learned elements. While the other organizations mostly developed training solutions for their own specific training needs, the PEO STRI goal is to incorporate standardized applications that can be implemented across the Army.

Baseline Requirements

Two ways to establish such commonality and standardization are to develop a baseline requirements document for gaming technology and to establish a program of record for it, said Lt. Col. Gary Stephens, ACTT Product Manager. This is the same kind of approach the Army uses for the acquisition of training devices for major weapons systems, for example.

"When you do have a program of record, then you can keep everybody on the same page," Stephens said. "The Army needs to provide a baseline requirements document and establish a program of record so that you can provide a standardized acquisition approach across this huge Army community. Today, it is a challenge for us to stay abreast of the changes to DARWARS Ambush!, for example, without a formal program of record."

Regardless of which gaming technology direction PEO STRI decides to focus on, two elements both Stephens and Dubow say are essential are software authoring tools and a robust mission editor. Both are vital to allowing gaming programmers, throughout the Army, to quickly add new models and battlefield-lessons-learned tactics to the basic gaming infrastructure. In this way, the Army would be making the best use of one of the biggest advantages of employing gaming technology for training, namely its capability to be rapidly modified to simulate new elements of a changing battlefield environment.

"If you don't have the ability to go into your game and implement those changes very easily, your game becomes stale," Stephens said. "You want to have the tools so that as quickly as you get lessons learned from your theater back to the person who is making those software changes to the game-based trainer, the unit that has not deployed yet is training with the latest information on that system."

Gaming User's Conference

PEO STRI hopes to find some of the direction for its next gaming ventures through events such as its Army Gaming Technology User's Conference. The conference took place March 13-14 this year at the Battle Management Center at Fort Hood. Participants in the conference included representatives from the Army Command and General Staff College, RDECOM's Simulation Training Technology Center (STTC), the Marine's PMTRASYS, the Naval Post Graduate School, the Joint Advanced Distributed Learning (ADL) Co-Lab, Sandia Labs and Booz Allen Hamilton.

One of the purposes of the User's Conference is to allow field commands to demonstrate how they have uniquely modified particular games for specific training purposes. Perry McDowell of the Naval Postgraduate School and the Executive Director of for the Delta 3D Game Engine Project demonstrated some games that have been developed that use this collection of open-source gaming engines. The second day of the conference was devoted to demonstrations of DARWARS Ambush! applications.

"Expansion of the capabilities of the Ambush! product is a major focus for us right now," Dubow said. "We would like to expand them into the massively multiplayer online world, so that we could run an online exercise from a soldier's desktop in Fort Hood to the soldiers that serve in National Guard or Army Reserve units at other locations. These personnel need to work together in an online environment to learn how to run a convoy, for example."

While no one is saying it at this time, with its newly expanded focus on game-based training technology, its recently designated HCA authority, and its efforts to create an IDIQ contract vehicle for gaming technology acquisition training, it's logical to assume that PEO STRI may become the Army's leading acquisition agency for this type of training solution.

"The Army has already recognized that games are an important tool for us to prepare units that are going in convoys for leadership in a hostile environment," Marion summed up. "Our experiences have driven us to understand that all our people need to be prepared, including combat support and combat service units. In providing the full spectrum of training that includes medical, chemical and biological, games provide us with a medium where we can train medical procedures, navigation skills, and basic soldier skills inherent to their readiness. We believe that gaming falls within our charter to provide live, virtual and constructive training solutions for the Army. We also believe within the rights of our HCA that this is a logical extension of technologies that we already have as our core competencies." MST